UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,917	10/24/2003	Linfang Zhu	224713	9043

23460 7590 05/09/2006

LEYDIG VOIT & MAYER, LTD
TWO PRUDENTIAL PLAZA, SUITE 4900
180 NORTH STETSON AVENUE
CHICAGO, IL 60601-6780

EXAMINER	
SHOSHO, CALLIE E	
ART UNIT	**PAPER NUMBER**
1714	

DATE MAILED: 05/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/692,917	ZHU ET AL.	
	Examiner	Art Unit	
	Callie E. Shosho	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. All outstanding rejections are overcome by applicants' amendment filed 2/24/06.

It is noted that in light of the amendment to copending 10/314,163, the double patenting rejection of record is withdrawn. Specifically, all the claims of 10/314,163 have been amended to recite that the ink is "free of polyamine" which is in direct contrast to the present claims that all require polyamine.

The new grounds of rejection as set forth below are necessitated by applicants' amendment and thus, the following action is final.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-3, 5, 7, 12, 17-22, and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoi et al. (U.S. 2003/0227531) in view of Doi (U.S. 6,988,795).

Hosoi et al. disclose ink jet ink comprising water, 0.5-20% opaque pigment, i.e. Pigment Yellow 74 and Pigment Yellow 98, 0.1-10% acidic resin such as acrylic resin, 0.05-20% polyethyleneimine, 1-60% solvent including polyhydric alcohol and ethanol, surfactant, and less than 20% conductivity agent. Hosoi et al. further disclose method of printing the ink onto substrate by ejecting the ink from printer onto the substrate (paragraphs 2, 55, 61, 66-69, 72, 83, 86, 94, 96-98, and 112).

The difference between Hosoi et al. and the present claimed invention is the requirement in the claims of specific conductivity agent.

Doi, which is drawn to ink jet ink, disclose the use of hydrophobic compound such as calcium hydroxide in order to adjust the conductivity of the ink (col.14, lines 15 and 19-20).

In light of above, it therefore would have been obvious to one of ordinary skill in the art to use such conductivity agent in the ink of Hosoi et al. in order to produce ink jet ink with conductivity sufficient for printing, and thereby arrive at the claimed invention.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoi et al. in view of Doi as applied to claims 1-3, 5, 7, 12, 17-22, and 25-26 above, and further in view of Santilli et al. (U.S. 5,738,716).

The difference between Hosoi et al. in view of Doi and the present claimed invention is the requirement in the claims of Pigment Yellow 139.

Hosoi et al. disclose the use of opaque pigments including Pigment Yellow 74, however, there is no disclosure of Pigment Yellow 139.

Santilli et al., which is drawn to ink jet inks, disclose the use of Pigment Yellow 139 in order to produce ink with desired color wherein the pigment does not release toxic byproduct when it degrades. Further, Santilli et al. disclose the equivalence and interchangeability of Pigment Yellow 74, as disclosed by Hosoi et al., with Pigment Yellow 139 as presently claimed (col.2, lines 1-7).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use Pigment Yellow 139 in the ink jet ink of Hosoi et al. in order to produce yellow ink, and thereby arrive at the claimed invention.

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoi et al. in view of Doi as applied to claims 1-3, 5, 7, 12, 17-22, and 25-26 above, and further in view of Zhu et al. '933 (U.S. 6,221,933)

The difference between Hosoi et al. in view of Doi and the present claimed invention is the requirement in the claims of specific organic solvent.

Zhu et al. '933, which is drawn to ink jet ink, disclose the use of methyl ethyl ketone in order to improve ink stability and inhibit gel formation (col.4, lines 51-57 and 64-67).

In light of the motivation for using methyl ethyl ketone disclosed by Zhu et al. '933 as described above, it therefore would have been obvious to one of ordinary skill in the art to use methyl ethyl ketone in the ink jet ink of Hosoi et al. in order to produce stable ink, and thereby arrive at the claimed invention.

6. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoi et al. in view of Doi as applied to claims 1-3, 5, 7, 12, 17-22, and 25-26 above, and further in view of Mead et al. (U.S. 5,596,027).

The difference between Hosoi et al. in view of Doi and the present claimed invention is the requirement in the claims of specific acidic resin.

Mead et al., which is drawn to ink jet ink, disclose the use of acidic resin with acid number of 100-300 such as styrene/α-methylstyrene/acrylic acid copolymer in order to produce water resistant image (col.10, lines 21-24 and col.11, lines 16-19).

In light of the motivation for using specific acidic resin disclosed by Mead et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use styrene/α-methylstyrene/acrylic acid copolymer in the ink jet ink of Hosoi et al. in order to produce ink that produces water resistant images, and thereby arrive at the claimed invention.

7. Claims 1-3, 5-17, and 20-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu et al. '933 (U.S. 6,221,933) in view of Mead et al. (U.S. 5,596,027) and Zhu et al. '495 (U.S. 2004/0154495).

Zhu et al. '933 disclose ink jet ink comprising up to 95% organic solvent including ketones such as methyl ethyl ketone, amides, lower alcohols such as ethanol, ethers, and esters, 0.01-5% polyamine such as polyethyleneimine, 1-10% pigment, 3-30% acidic resin having acid number of 10-250 such as acrylic resin. The acidic resin includes those known under the tradename Joncryl 586 and Joncryl 683 which are well known, as found in Mead et al. (col. 11, lines 17-19), as styrene/α-methylstyrene/acrylic acid copolymers. Further, for specific types of pigments, Zhu et al. refers to Mead et al. which discloses the use of opaque pigments such as titanium dioxide and other organic pigments (col.7, lines 8-39). Zhu et al. '933 further disclose method of printing the ink onto substrate such as glass by ejecting the ink from printer onto the substrate (col.1, lines 10-12 and 17-24, col.3, lines 32-34, col.4, lines 51-65, col.5, lines 1-13 and

35, col.7, lines 9-16, 32-33, 41, and 46-49, col.8, lines 23-25 and 41, col.9, lines 1, 45-47, and 55-60).

The difference between Zhu et al. '933 and the present claimed invention is the requirement in the claims of hydrophobic conductivity agent.

Zhu et al. '495, which is drawn to ink jet ink, disclose the use of less than 5% hydrophobic conductivity agent such as tetrabutylammonium hexafluorophosphate (paragraph 36) in order to impart sufficient conductivity to the ink.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use hydrophobic conductivity agent in the ink of Zhu et al. '933 in order to produce ink jet ink with conductivity sufficient for printing, and thereby arrive at the claimed invention.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu et al. '933 in view of Mead et al. and Zhu et al. '495 as applied to claims 1-3, 5-17, and 20-26 above, and further in view of Wu et al. (U.S. 2003/0144375).

The difference between Zhu et al. '933 in view of Mead et al. and Zhu et al. '495 and the present claimed invention is the requirement in the claims of Pigment Yellow 139.

Zhu et al. '933 disclose the use of opaque pigments including white pigment such as titanium dioxide.

Wu et al., which is drawn to ink jet inks, disclose the use of Pigment Yellow 139 in order to produce ink with desired color. Further, Wu et al. disclose the equivalence and interchangeability of white pigment such as titanium dioxide, as disclosed by Zhu et al. '933, with Pigment Yellow 139 as presently claimed (paragraphs 137-138).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use Pigment Yellow 139 in the ink jet ink of Zhu et al. '933 in order to produce yellow ink, and thereby arrive at the claimed invention.

9. Claims 1-3, 5, 7, 12-22, and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoi et al. (U.S. 2003/0227531) in view of Zhu et al. '495 (U.S. 2004/0154495).

Hosoi et al. disclose ink jet ink comprising water, 0.5-20% opaque pigment, i.e. Pigment Yellow 74 and Pigment Yellow 98, 0.1-10% acidic resin such as acrylic resin, 0.05-20% polyethyleneimine, 1-60% solvent including polyhydric alcohol and ethanol, surfactant, and less than 20% conductivity agent. Hosoi et al. further disclose method of printing the ink onto substrate by ejecting the ink from printer onto the substrate (paragraphs 2, 55, 61, 66-69, 72, 83, 86, 94, 96-98, and 112).

The difference between Hosoi et al. and the present claimed invention is the requirement in the claims of specific conductivity agent.

Zhu et al. '495, which is drawn to ink jet ink, disclose the use of less than 5% hydrophobic conductivity agent such as tetrabutylammonium hexafluorophosphate (paragraph 36) in order to impart sufficient conductivity to the ink.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use hydrophobic conductivity agent in the ink of Hosoi et al. in order to produce ink jet ink with conductivity sufficient for printing, and thereby arrive at the claimed invention.

10. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoi et al. in view of Zhu et al. '495 as applied to claims 1-3, 5, 7, 12-22, and 25-26 above, and further in view of Santilli et al. (U.S. 5,738,716).

The difference between Hosoi et al. in view of Zhu et al. '495 and the present claimed invention is the requirement in the claims of Pigment Yellow 139.

Hosoi et al. disclose the use of opaque pigments including Pigment Yellow 74, however, there is no disclosure of Pigment Yellow 139.

Santilli et al., which is drawn to ink jet inks, disclose the use of Pigment Yellow 139 in order to produce ink with desired color wherein the pigment does not release toxic byproduct when it degrades. Further, Santilli et al. disclose the equivalence and interchangeability of Pigment Yellow 74, as disclosed by Hosoi et al., with Pigment Yellow 139 as presently claimed (col.2, lines 1-7).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use Pigment Yellow 139 in the ink jet ink of Hosoi et al. in order to produce yellow ink, and thereby arrive at the claimed invention.

11. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoi et al. in view of Zhu et al. '495 as applied to claims 1-3, 5, 7, 12-22, and 25-26 above, and further in view of Zhu et al. '933 (U.S. 6,221,933)

The difference between Hosoi et al. in view of Zhu et al. '495 and the present claimed invention is the requirement in the claims of specific organic solvent.

Zhu et al. '933, which is drawn to ink jet ink, disclose the use of methyl ethyl ketone in order to improve ink stability and inhibit gel formation (col.4, lines 51-57 and 64-67).

In light of the motivation for using methyl ethyl ketone disclosed by Zhu et al. '933 as described above, it therefore would have been obvious to one of ordinary skill in the art to use methyl ethyl ketone in the ink jet ink of Hosoi et al. in order to produce stable ink, and thereby arrive at the claimed invention.

12. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoi et al. in view of Zhu et al. '495 as applied to claims 1-3, 5, 7, 12-22, and 25-26 above, and further in view of Mead et al. (U.S. 5,596,027).

The difference between Hosoi et al. in view of Zhu et al. '495 and the present claimed invention is the requirement in the claims of specific acidic resin.

Mead et al., which is drawn to ink jet ink, disclose the use of acidic resin with acid number of 100-300 such as styrene/α-methylstyrene/acrylic acid copolymer in order to produce water resistant image (col.10, lines 21-24 and col.11, lines 16-19).

In light of the motivation for using specific acidic resin disclosed by Mead et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use styrene/α-methylstyrene/acrylic acid copolymer in the ink jet ink of Hosoi et al. in order to produce ink that produces water resistant images, and thereby arrive at the claimed invention.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
5/5/06